IN THE DRAWINGS:

The attached sheet of drawings includes proposed changes to Figs. 1 and 2.

Attachment: Annotated Sheet Showing Changes

REMARKS

This is intended as a full and complete response to the Final Office Action dated June 28, 2005, having a shortened statutory period for response set to expire on September 28, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Figures 1 and 2 are objected to under to under 37 CFR § 1.84(o). Applicant has presented proposed amendments to the drawings to include the descriptive legends requested by the Examiner and to remove the box labeled "11" (Figure 2) which was not described in the specification.. Upon satisfaction of the Examiner, Applicant will submit a replacement sheet of formal drawings. Withdrawal of the drawing objection is respectfully requested.

Claims 1-5 and 8-20 remain pending in the application and are shown above. Claims 1-5 and 8-11 stand rejected and claims 13-20 are indicated to be allowable by the Examiner. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has canceled claim 12 and added new claim 21 to present claim 12 in independent form including all of the limitations of the base claim and intervening claims (claim 3). Allowance of claim 21 is respectfully requested.

Reconsideration of the rejected claims is requested for reasons presented below.

Rejections Under 35 U.S.C. § 103

Claims 1, 2, 4, 8-9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Daza (M. Daza, et al., "All-Optical WDM-to-TDM Conversion with Total Capacity of 33 Gb/s for WDM Network Links", IEEE Journal of Selected Topics in Quantum Electronics, Vol. 3, No. 5, October 1997) in view of Horiuchi (U.S. Patent 5,726,789). The Examiner states that:

> Daza teaches in FIG. 3 a WDM-to-TDM conversion comprising a non-linear optical mirror (NOLM) with a data access and a probe access. The data access receives WDM data from EDFA and the probe access receives a clock signal of wavelength λ_{probe} from a hybrid mode-locked semiconductor laser (HML-SL). The NOLM outputs an optical data of wavelength λ_{probe}. Daza explains in p. 1289, left col., last paragraph that the bit rate of the clock is F_o and the bit rate of each wavelength channel is F_o/N. The difference between Daza and the claimed invention is that Daza does not teach a multiplier for generating the optical clock signal. Horiuchi teaches in FIG. 1 to use a multiplier to convert a clock signal

from a low frequency oscillator 12-1 to a high frequency clock signal, which is used to modulate light generated by a laser as illustrated in FIG. 4(b). One of ordinary skill in the art would have been motivated to combine the teaching of Horiuchi with the WDM-to-TDM conversion apparatus of Daza because a low frequency oscillator is easier to design and more stable in operation than a high frequency oscillator. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a multiplier to convert a low frequency electrical clock signal into a high frequency electrical clock signal and convert the electrical clock signal into a optical clock signal, as taught by Horiuchi, in the WDM-to-TDM conversion apparatus of Daza because a low frequency oscillator is easier to design and more stable in operation than a high frequency oscillator.

Applicants respectfully traverse the rejection on grounds that the Examiner has not established a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. See In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Further, the teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure. See M.P.E.P. § 2143, citing In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Still further, the examiner must *particularly* identify any suggestion, teaching or motivation from *within* the references to combine the references (emphasis added). See In Re Dembiczak, 50 USPQ2d 1614 (Fed. Cir. 1999). The mere recitation of a combination of references does not amount to particularly identifying a suggestion, teaching, or a motivation to combine the references. Finally, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Here, the Examiner's assertion for the combination of Daza and Horiuchi, is that "it would have been obvious... to use a multiplier to convert a low frequency electrical clock signal into a high frequency electrical clock signal and convert the electrical clock signal into a optical clock signal, as taught by Horiuchi, in the WDM-to-TDM conversion apparatus of Daza because a low frequency oscillator is easier to design and more stable in operation than a high frequency oscillator." That assertion to combine the references identified by the Examiner is not motivation, but merely an unsupported legal conclusion that the combined elements provide an obvious result. Importantly, neither knowledge in the art nor the references themselves provides any motivation or suggestion to combine their teachings to arrive at the claimed invention.

First, Daza proves the feasibility of its disclosed conversion scheme through an experimental set-up that uses pulses generated from a monolithic HML-SL as the high frequency "probe" signal, as noted by the Examiner. Certainly, if a low frequency oscillator were so much easier to design and so much more stable than a high frequency oscillator, as the Examiner suggests, then the experimental set-up in Daza would have implemented a low frequency oscillator instead. The fact that Daza teaches the use of a stand-alone high frequency probe signal, when low frequency oscillators were clearly available to use instead, suggests that the Examiner is overstating the benefits of low frequency oscillators relative to high frequency oscillators and undermines the Examiner's position that someone skilled in the art would, in fact, be motivated to modify Daza to implement a low frequency oscillator.

Second, Daza does not disclose any element that generates a low frequency clock signal that can be input into a multiplier to generate a high frequency carrier signal, which is necessary for the combination of Daza and Horiuchi to work. For example, Figure 3 of Daza discloses nothing more than a plurality of wavelength channels, each having a bit rate of F/n. There is no clock-like element responsible for producing a clock signal at this same frequency. In fact, Applicant's own application provides the only teaching of a clock-like element (i.e., emitter 10) that produces a clock signal at the same frequency as the wavelength channels that is then input into a multiplier to produce the high frequency carrier signal. See Application at p. 5, lines 5-10. Thus, Applicant contends that the Examiner is essentially using the teachings of the Applicant's own application to provide a roadmap for combining Daza and Horiuchi. Thus, the Examiner is finding a motivation to combine these references, not in the references themselves, but in the teachings of Applicant's own application. That is nothing more than finding motivation based on impermissible hindsight.

In sum, the Examiner is relying on unsupported legal conclusions and impermissible hindsight to support the finding of obviousness. As is well-established, neither of these provides a proper basis to support a rejection based on *prima facie* obviousness. Therefore, the Examiner erred in rejecting the claims under 35 U.S.C. §103(a).

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daza and Horiuchi as applied to claims 1, 2, 4, 8-9 and 11 above, and further in view of Mikkelsen (U.S. 6,614,582 B1). Applicant's argument above equally applies to claim 3 since claim 3 depends from base claim 1. Accordingly, withdrawal of this rejection is respectfully requested.

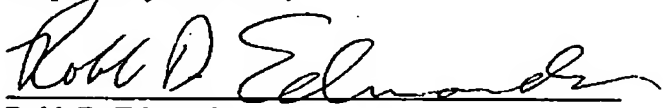
Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daza and Horiuchi as applied to claims 1, 2, 4, 8-9 and 11, above, and further in view of Tai (U.S. 6,275,322 B1). Applicant's argument above equally applies to claim 5 since claim 5 depends from base claim 1. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daza and Horiuchi as applied to claims 1, 2, 4, 8-9 and 11 above, and further in view of Naoe (U.S. Patent 6,678,479 B1). Applicant's argument above equally applies to claim 10 since claim 10 depends from base claim 1. Accordingly, withdrawal of this rejection is respectfully requested.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the Final Office Action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Final Office Action.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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Annotated Sheet Showing Changes

Fig. 1

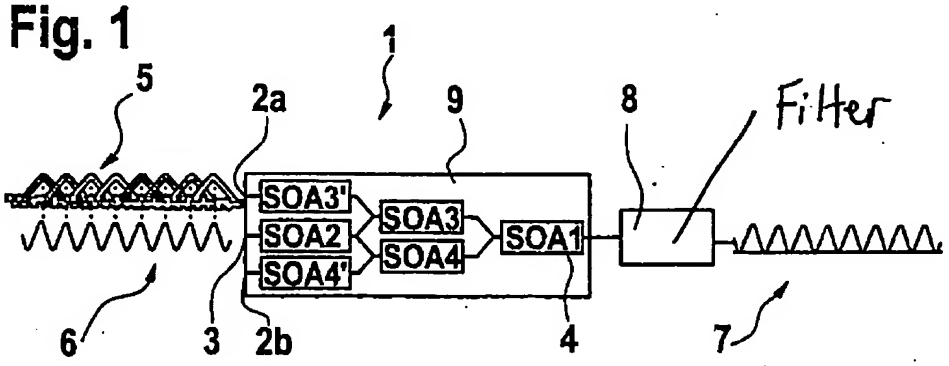
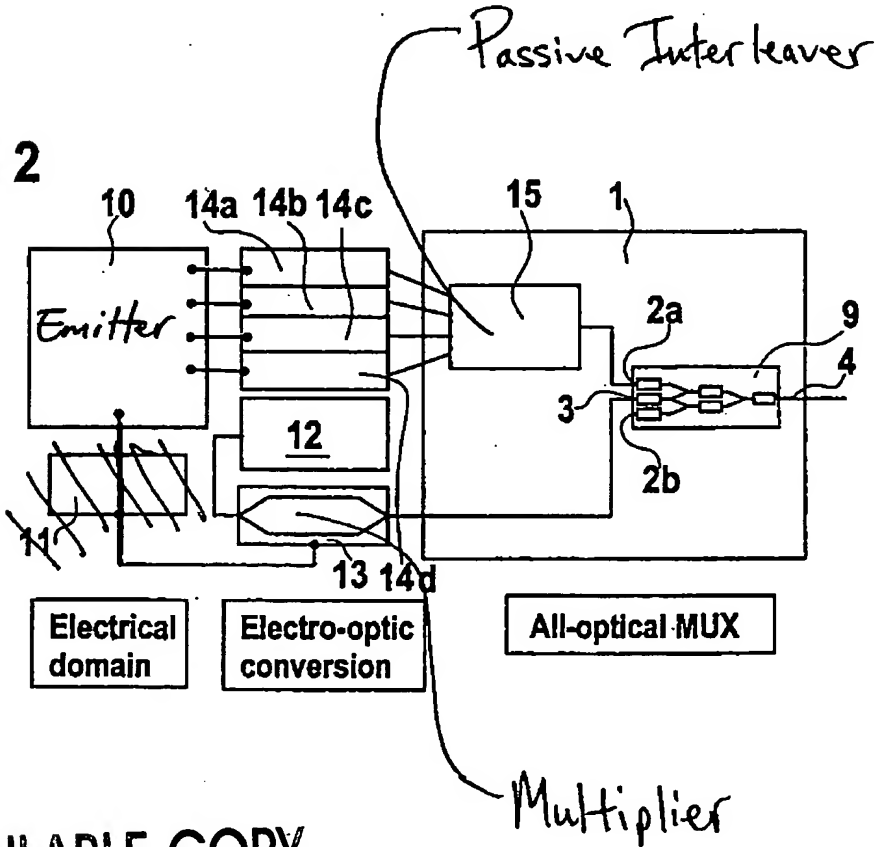


Fig. 2



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